**DER-CAM** DECISION SUPPORT TOOL FOR
DECENTRALIZED ENERGY SYSTEMS

ANALYTICS | PLANNING | OPERATIONS

Date published: Monday, December 21, 2015
Applies to DER-CAM version 4.1.4 and higher as well as Graphical User Interface V 1.4.3.4 and higher

# Assessments Levels for DER-CAM use

## Basic User Level

The Basic Level for DER-CAM is intended primarily for learning purposes or for quick scanning of options at sites where the existing databases (energy loads, solar radiation, and tariffs) are relevant.

This level requires users to pre-select a site by using the load, solar radiation, and tariff databases present in DER-CAM. No entering of custom load, solar, and tariff data is possible.
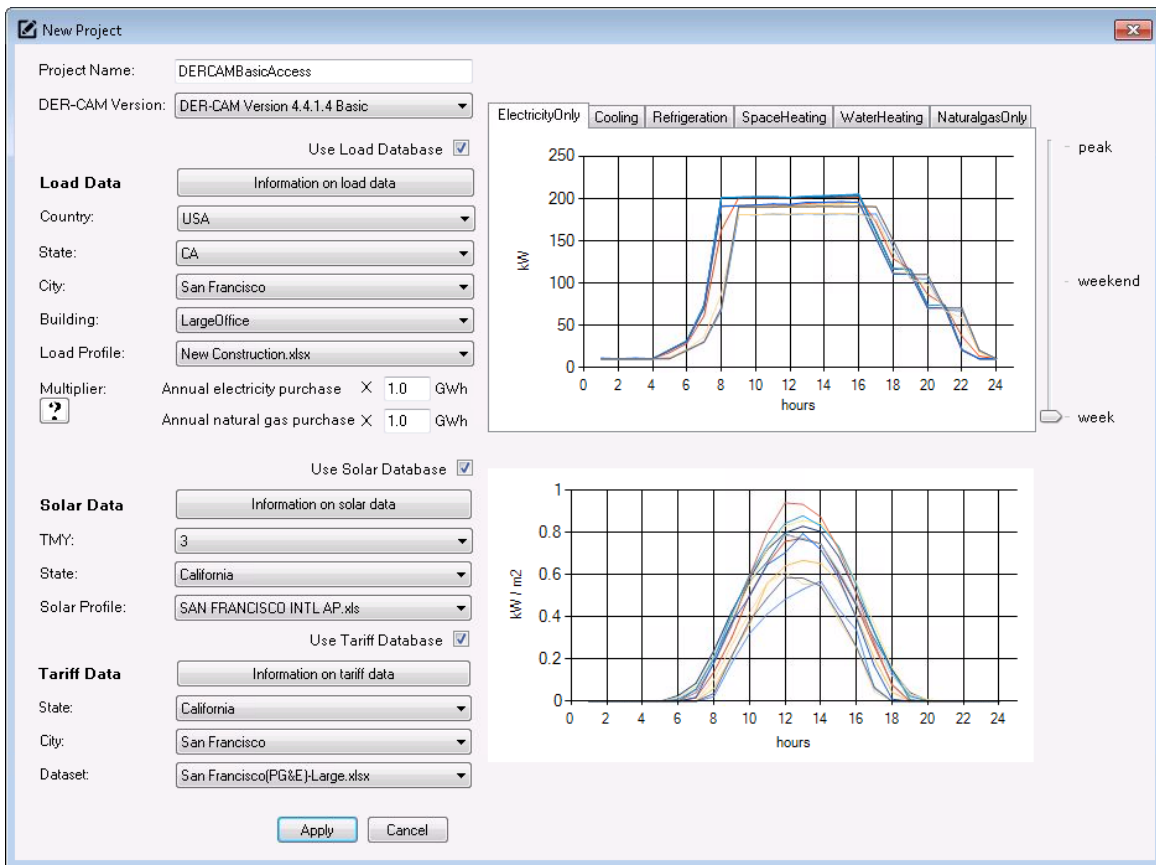


*Figure 1 - Use of DER-CAM databases*

The menu options available are limited, and the available options are meant to help users solidify the understanding of the workflow of DER-CAM models. As DER-CAM analyses typically require both a reference run and an investment analysis run, these two run types are available. However, run modifiers such as enabling power exports or forcing zero net energy balance are disabled, and the technology options available are also limited and no edits are allowed in any of the pre-defined technology

parameters. This includes both economic and performance data. The Basic User Level should enable fast and easy first order microgrid assessment runs.

## Intermediate User Level

The Intermediate DER-CAM user level includes all of the features available in the basic mode, such as the loads, solar radiation, and tariff databases.

However, greater flexibility and a wider number of features is made available to the user as all of the database inputs (loads, solar radiation, and tariffs) may be customized by users to model more complex situations. Furthermore, the Intermediate User Level allows using of some of the Load Management and Resiliency features, including the definition of outages and load priority levels for load curtailment analysis in islanding conditions. It is equally possible to enable power exports of onsite generation, as well as the definition of feed-in tariffs and power export conditions (minimum and/or maximum requirements).



*Figure 2 - End-use loads may be edited*

The Intermediate User Level does not allow changing technology parameters, but enables users to test microgrid conditions including outages (forced islanding) and gauging the tradeoff between outage costs induced by load curtailments and investment costs from additional DERs to serve loads when the utility is unavailable.
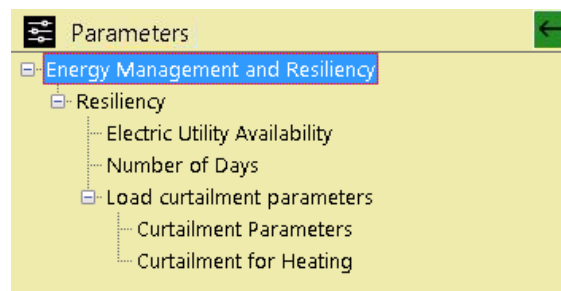


*Figure 3 - Load Management Features*

## Advanced User Level

The Advanced DER-CAM user level includes all of the features available in the Intermediate User Level, including the ability to edit energy loads, solar radiation data, as well as tariff information.

In addition, all technology definitions are now unlocked and users are allowed to modify existing data and input custom technologies. Additional load management features are enabled, including load shifting and demand response.
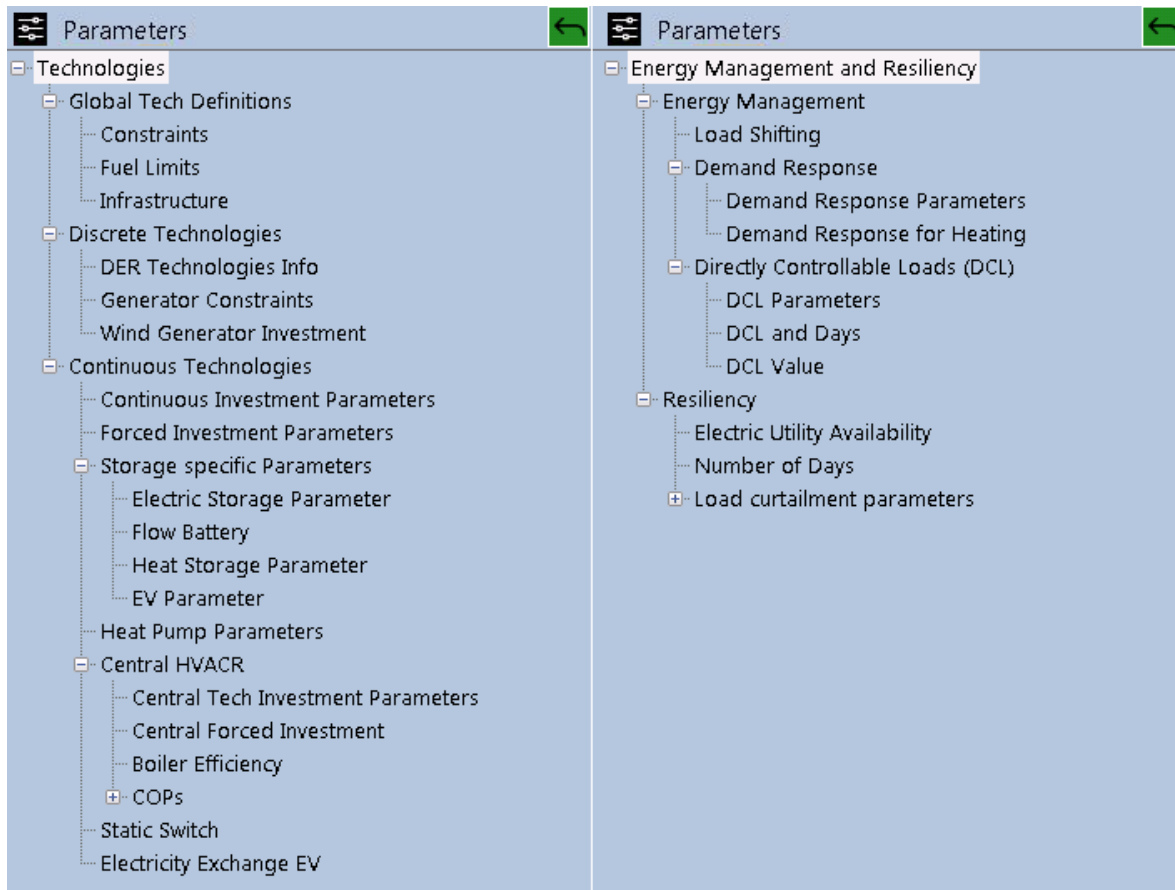


*Figure 4 - Unlocked technology options and load management features*

By enabling these features users can not only define real sites, but also express the technical characteristics of DER equipment relevant to a particular manufacturer, rather than using the reference values made available through the DER-CAM template and databases.

The Advanced User Level empowers users with all of the most commonly used DER-CAM features, and will typically allow building a customized microgrid model that fully covers the case under study.

## Full User Level

The Full User Level of DER-CAM grants users complete access to all input data and parameters that are required to build the most complex models. Energy loads, weather data, tariff information, technology options, and energy management options are all enabled, thus allowing very complex models to be created.

All features available in the Advanced User Level are included in the Full User Level, and additional features are now enabled, namely building shell improvement measures, financial incentives such as investment subsidies and performance based incentives, net metering, and Zero Net Energy constrains. This level requires advanced experience and training in using DER-CAM.



*Figure 5 - Full DER-CAM access unlocks all features*